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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/591,523	06/09/2000	Fujio Kuwako	47163-00018USD1	4418

30223 7590 09/11/2002  
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EXAMINER

CUNEO, KAMAND

ART UNIT PAPER NUMBER

2827

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

91591523

Applicant(s)

Examiner

Cures

Group Art Unit

2827

--The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address--

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

☒ Responsive to communication(s) filed on 6/17/02

☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 10-19 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 10-19 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☒ The drawing(s) filed on 6/9/00 is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other \_\_\_\_\_

Office Action Summary

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to for the following reasons.

The figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross hatched. The cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

Drawing corrections in compliance with MPEP 608.02(v) are required in response to this office action.

The sample drawing is appropriate and all drawing corrections to all of the figures is required. In the field of the product of the present invention, existence of correct hatching is essential to interpretation of the drawings.

### ***Information Disclosure***

2. The references listed on IDS #2 (filed 6/9/00) have not been considered, because a copy of the references is not included in the file. Kindly resubmit a copy of these references for consideration: the examiner was not able to obtain them.

### ***Treatment of Claims Based on Prior Art***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 5473120, hereafter Ito) and Downes, Jr. et al. (US 6373717, hereafter Downes).

Ito discloses the thermosetting resin, wiring, inner layer board, via and all of the structural limitations of the claims. The method limitations are process limitations in a product claim which

distinguish over the prior art only to the extent that the define the structure.

Ito discloses the claimed invention except for teaching a layer of alkaline refractory metal under the copper and not in the via. Downes discloses layer (22) of copper with an underlaying layer of a nickel alloy, column 6 at line 40. There is no nickel in the via.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to include a layer of nickel under the copper to form the layer (22) structure of Downes for the conductive layer of Ito to affect better CTE match for improved integrity of the substrate (minimize peeling or deforming).

#### ***Relevant Art***

7. The following references are made of record but not relied upon.

Feild et al. (6433436) discloses Ti layer (198) under Cu layer (204), but does not disclose copper in the through hole and Ti is not as an alkaline metal.

Kariya (6440542) discloses zinc layer (16) between the copper layer (18) and the substrate, but there is no copper in the via hole. Further, this reference does not qualify as prior art.

Rokugawa (6441314) discloses chromium (41a) under copper layer (20a), but the via contains a layer (42') of chromium.

#### ***Response to Arguments***

8. Applicant's arguments have been carefully reviewed, but are moot in view of the new grounds of rejection.

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*Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*Closing*

10. Any inquiries related to the examination of this application should be directed to Ex. K. Cuneo at (703) 308-1233 or her supervisor Ex. J Gaffin at (703) 308-3301. Inquiries of a general nature should be directed to the receptionist of Group 2800 at (703) 308-0956. The fax numbers for Group 2800 are (703) 308-7722 and 7724.



K. Cuneo

Patent Examiner Group 2841 2827  
September 8, 2002

KAMAND CUNEO  
PRIMARY EXAMINER